



# राजपत्र, हिमाचल प्रदेश (असाधारण)

हिमाचल प्रदेश शासन द्वारा प्रकाशित

शिमला, बुधवार, 20 जनवरी, 1960/30 पौष, 1881

## HIMACHAL PRADESH ADMINISTRATION

### INDUSTRIES DEPARTMENT

#### NOTIFICATION

*Simla-4, the 3rd August, 1959/12th Sravana, 1881*

No. 1&S. 15-(Lab)-308/57.—In exercise of the powers conferred on him *vide* section 29 of the Indian Boilers Act, 1923, the Lieutenant Governor, Himachal Pradesh is pleased to make the following Rules:—

#### RULES

##### I. PRELIMINARY

1. **Definitions.**—In these Rules, unless there is anything repugnant in the subject or context,—

- (a) 'the Act' means the Indian Boilers Act, 1923;
- (b) 'section' means a section of the Act;
- (c) 'regulation' means a regulation framed by the Board under section 28 of the Act;
- (d) 'the Director of Industries' means the officer appointed by the State Government in this behalf.

2. **Payment of fees.**—All fees payable under the Act shall be deposited by the payer in a Government Treasury or the State Bank of India. Applications, under sections 7 and 8 of the Act to which the Treasury or Bank receipt for payment is affixed, shall be deemed to be accompanied by the prescribed fee.

## III. DUTIES OF THE CHIEF INSPECTOR

**3. Control by the Director of Industries.**—The Chief Inspector shall work under the administrative control of the Director of Industries, and shall submit to him:—

- (a) an annual report on the administration of the Act;
- (b) such other reports and return as may be called for.

Exceptional cases, which are not covered by the regulations or rules, should be reported to the Director of Industries.

**4. Duty of general control.**—The Chief Inspector is vested with all the powers of an Inspector under the Act. In areas for which Inspectors have been appointed by the State Government under sub-section (1) of section 5 of the Act, his main duty consists in supervising and controlling the work of such Inspectors, and he should actually inspect or examine boilers only in exceptional cases, or where he considers that the work of an Inspector requires personal check. In other areas he will perform in addition to his own duties, the duties of an Inspector under the Act.

**5. Specific Duties.**—The Chief Inspector shall—

- (a) personally check the registration and measurements of newly registered boilers, for the initial working pressure on the basis of Part I of the regulations and enter under his own signature all orders required by section 7 ;
  - (b) enter under his own signature any subsequent entries required in the registration book;
  - (c) in the case of any boiler, the transfer of which has been reported under clause (b) of section 6, obtain from the State in which it was originally registered the registration book of such boiler;
  - (d) receive application for registration or inspection under section 7 or 8, proposals for repairs, alterations or renewals under section 12, and reports of accidents under section 18;
  - (e) prepare the programme of all Inspectors subordinate to him with due regard to the convenience of owners generally;
- N. B.*—Inspection of boilers in seasonal factories should in all cases be fixed during the off season.
- (f) examine and countersign an Inspectors' Memorandum of Inspection Book of each boiler after each inspection;
  - (g) examine and pass orders on the diaries and returns of Inspectors;
  - (h) pass orders in all cases in which an Inspector proposes to increase or reduce the pressure allowed for any boiler under section 8 or revoke, cancel or refuse to renew the certificate of a boiler under section 11 or to order important repairs, structural alterations or renewals in a boiler under section 12;
  - (i) pass orders in all cases in which it is reported that after due notice the boiler has not been properly prepared for inspection;
  - (j) decide all appeals against the orders of an Inspector under section 19;
  - (k) sanction prosecutions under the Act; and
  - (l) enquire into serious accidents to boilers.

**6. Instructions to owners.**—It shall be the duty of the Chief Inspector to advise owners as regard the maintenance, working and cleaning of holders and to issue a set of instructions on the lines indicated in Appendix A. The instructions should be conspicuously displayed in each boiler house.

**7. Registers to be kept.**—The Chief Inspector shall keep in his office—

- (a) a register in Form A of all boilers registered in the State or the registration book and memorandum of inspection book of which have been transferred from another State;
- (b) the registration book and memorandum of inspection book of all boilers borne on his register;
- (c) a register of appeals;
- (d) a register of accidents;
- (e) a register of registration and inspection fees received.

**8. Control of bills.**—The Chief Inspector shall be controlling or countersigning authority in respect of all contingent bills and of travelling allowance bills of officers subordinate to him.

### III. DUTIES OF INSPECTORS

**9. Subordinates to Chief Inspector.**—Inspectors shall be directly subordinate to and under the control of the Chief Inspector.

**10. General duties of Inspectors.**—The main duties of the Inspector as laid down in the Act are the inspection and examination of boiler and steam pipes. Inspections shall be carried out in accordance with Part II of the regulations and Parts IV and V of these Rules which must be very closely observed.

**11. Search for unregistered boilers.**—In addition to the inspection and examination of boilers it is the duty of Inspectors to search for unregistered or uncertificated boilers at or near the places they visit, and to see that certificated boilers are worked in accordance with the terms of their certificates.

**12. Advice to be given to owners.**—At the time of inspection Inspectors should advise the owner and the person in charge of the boiler on the management and upkeep of boiler with special reference to the amount of cleaning required in view of the quality of water used and should also impress upon them the usefulness of the instructions issued by the Chief Inspector.

**13. Specific duties.**—Inspectors shall—

- (a) maintain a memorandum of inspection book for each boiler they inspect and submit it to the Chief Inspector for examination and countersignature after each inspection;
- (b) keep a diary showing places visited, boilers registered or inspected, with fees paid thereon, variations from the programme and any other important particulars. This diary should be sent to the Chief Inspector every week for examination;
- (c) enquire into accidents to boilers or steam pipes and submit reports thereon to the Chief Inspector;
- (d) report to the Chief Inspector cases of previously unreported accidents discovered at the time of inspection;

(e) submit for the orders of the Chief Inspector—

- (i) the memorandum of inspection book of all boilers proposed for registration under section 7;
- (ii) proposals for increasing or decreasing the pressure of a boiler after inspection under section 8;
- (iii) proposals for necessary repairs, structural alterations or renewals to a boiler under section 8 or 12;
- (iv) proposals for revoking, cancelling or refusing to renew certificate under section 8 or 11;
- (v) reports when boilers have not been properly prepared for inspection under section 14;
- (vi) proposal for prosecutions under the Act.

**14. Inspections at special times.**—(a) No examination of a boiler shall be made by an Inspector for the purpose of registering or issuing a certificate for a boiler on a Sunday, a gazetted holiday or between the hours of sunset and sunrise without the specific orders of the Chief Inspector in each case. In such cases a double fee may be charged half of which may be paid to the Inspector.

(b) If an owner does not apply for the renewal of his certificate under sections 8 and 10 until after the expiry of the specified period, he shall state his reasons for the delay, and the inspector shall thereafter fix a convenient date for the inspection of the boiler. If the Chief Inspector is not satisfied with the reasons given for the delay in putting in the application he may direct that a double fee shall be charged for such inspection.

(c) (i) In addition to the ordinary inspection fee leviable under the Rules, the Chief Inspector of Boilers may direct that an owner of a boiler shall pay the travelling expenses of an Inspector, equivalent to the travelling allowance admissible under the Rules, in cases where the boiler of such owner is not ready for inspection on the date specified for inspection for every additional visit made for the completion of the inspection.

(ii) The Inspector's travelling allowance may also be charged from the inspection of a boiler in isolated areas in addition to the fee prescribed under the Rules.

**15. Attendance during hearing of appeals.**—If the Chief Inspector so directs, Inspectors shall attend before the Chief Inspector or the appellate authority as the case may be during the hearing of appeals with regard to boilers which they have inspected.

#### IV. INSTRUCTIONS FOR REGISTRATION

**16. Importance of registration.**—Technical regulations for the registration of boilers and the scale of fees for registration are prescribed in Part II of the Regulations. The details of measurement recorded at the time of registration constitute a permanent record for the boilers and determines the original pressure at which the boiler is allowed to work. It is accordingly essential that the work should be done with the greatest care and precision.

**17. Receipt of applications.**—Application for registration shall be made under sub-section (1) of section 7 to the Chief Inspector, and shall be accompanied under rule 2 by a receipt for the prescribed fee. No application shall be accepted without the receipt. No boiler shall be registered if on measurement the fee is found to be deficient until the deficit has been paid. Any excess payment will be refunded at the time of registration.



**18. Necessity of avoiding delay.**—It is essential that no delay should occur in registration. In large towns the measurements under sub-section (3) of section 7 should ordinarily be completed and the reports submitted to the Chief Inspector within ten days of the receipt of the application. In no case should the interval exceed 30 days. The Chief Inspector should issue his orders under sub-section (4) of section 7 without delay.

**19. Register of registered boilers.**—The Chief Inspector shall maintain a register of registered boilers in serial order in Form A in two parts. In Part 1 (boilers originally registered in the State) the registered number of a boiler shall be the one immediately following the last serial number in the register. Gaps in the series due to the breaking up of boilers or to the transference of boilers to another State shall not be filled up. In part 2 (boilers originally registered in other States) entries shall be made as prescribed in rule 21.

**20. Procedure on a transfer of a boiler.**—Whenever a boiler is transferred from one State to another the owner shall under clause (b) of section 6 apply to the Chief Inspector of the State to which the boiler is transferred for the registration of the transfer, the boiler shall not be used until registration has been effected. The Chief Inspector shall then obtain from that State the registration book and memorandum of inspection book of the boiler. No fee shall be charged for recording transfers.

**21. Entries of transferred boiler in register.**—On receipt of the registration book and memorandum of inspection book the Chief Inspector shall enter the boiler under its original number in part 2 of the register, the registration book and the memorandum of inspection book shall be kept in the Chief Inspector's office.

**22. Note of transferred and dismantled boilers.**—Whenever a boiler has been transferred or broken up the fact shall be noted in the register of the State from which it has been transferred or in which it has been broken up. In the case of a boiler that it has been permanently dismantled the registration book and the memorandum of inspection book shall be destroyed.

## V. INSTRUCTIONS FOR INSPECTION

**23. Reference to previous inspection.**—Detailed instructions for the inspection for boilers are contained in Part II of the Regulations. In making inspections it is important that the Inspector should pay particular attention to entries made in the Memorandum of Inspection Book at the time of the previous inspection.

**24. Procedure during inspection.**—In arranging for inspections particular attention should be paid to the provisions of clause (e) of rule 5. The notice required by sub-section (4) of section 8 shall be sent in Form B. If a hydraulic test is necessary in addition to the ordinary inspection ample notice must be given to the owner. During the inspection of one of a battery of boilers, the Inspector should take the opportunity of examining the other boilers under steam, with special reference to the water gauges, pressure gauge and safety valves.

**25. Issue of certificates and provisional orders.**—(a) When a certificate is required for a boiler application shall be made to the Chief Inspector of Boilers, Jullundur by the owner or agent one month before the date of the expiry of the last certificate. The Chief Inspector on receipt of such applications together with the Treasury Receipt for the prescribed fee shall arrange for the inspection to take place at an early convenient date and will arrange to send the Notice in Form B to the applicant for necessary preparation of the boiler on the date notified for its inspection.

(b) All certificates must be issued from the Head Office after being countersigned by the Chief Inspector. A Provisional Order should be issued in every case of registration after hydraulic test if the Inspector is satisfied, that the conditions of section 9 of the Act are fulfilled. The steam test may be carried out at any convenient time within the period of the Provisional Order after which, if the test is satisfactory the certificate under section 7 shall be issued.

The Inspector may where necessary authorise the working of a boiler after complete inspection for renewed certificate under section 8 on a manuscript form pending the issue of the certificate. The manuscript shall contain the same details as a Provisional Order, under section 9. Where he proposes to issue a Provisional Order under section 9 the Inspector should satisfy himself that the boiler is fit to be worked at the maximum pressure and for the period entered in the Provisional Order. The issue of a Provisional Order shall be reported immediately to the Chief Inspector.

The period specified on any certificate or Provisional Order shall begin on the day following that on which the completed hydraulic test or thorough inspection is made.

To group inspection work in different localities certificates valid for less than twelve months may be issued by the Chief Inspector under the proviso to section 8 (5) of the Act. Where a licence is, under this section, issued for a period of less than twelve months a proportionate reduction in the licence fee will be allowed.

26. Certificates and Provisional Orders shall be issued in Forms V and VI respectively prescribed under the regulations but no such certificate or Provisional Order authorising the use of a boiler shall be issued unless and until the owner of a boiler or agent thereof engages a qualified boiler attendant and gets his number registered with the Inspector.

Duplicate copies of certificates for *bona fide* purposes may be issued to boiler owners during the currency of a certificate under the order of the Chief Inspector on receipt of a fee of Rs. 3 per copy.

27. (1) Fee for inspection shall be calculated on the basis of boiler rating, as prescribed in Regulation 385. The following fees are prescribed :—

				Rs.
For Boiler rating not exceeding	100			60
For Boiler rating exceeding	100	but not exceeding	300	75
For Boiler rating exceeding	300	but not exceeding	500	90
For Boiler rating exceeding	500	but not exceeding	700	105
For Boiler rating exceeding	700	but not exceeding	900	120
For Boiler rating exceeding	900	but not exceeding	1100	135
For Boiler rating exceeding	1100	but not exceeding	2000	150
For Boiler rating exceeding	2000	but not exceeding	4000	180
For Boiler rating exceeding	4000	but not exceeding	6000	210
For Boiler rating exceeding	6000	but not exceeding	8000	240
For Boiler rating exceeding	8000	but not exceeding	10000	270
For Boiler rating exceeding	10000			300

Rupees 60 for the inspection of steam pipe made after structural and alteration, or renewal under section 8 (3), (4) and not at the time of inspection of boilers.

(2) *Second fee in default.*—A second fee will be levied for inspection in any case where the inspection of a boiler is begun but owing to the fault or neglect of the owner or person-in-charge is not completed within a period of six months from the date of commencement of inspection.

## VI. ACCIDENTS

**28. Investigation of accidents.**—When the Chief Inspector receives any report of accident to a boiler or steam pipe under section 18 he shall forward it at once to an Inspector, who shall with the least possible delay proceed to the place to investigate the accident.

**29. Procedure during enquiry.**—The Inspector at his enquiry shall make a careful examination of the damaged parts and shall take such measurements and make such sketches for the purpose of his report as he may deem necessary. He shall enquire into the circumstances attending the accident and not the time of its occurrence, its nature and extent, the injury caused to persons and the damage done to property.

**30. Power to hold enquiry in writing.**—Inspectors are authorised to take the written statements of witnesses and all persons immediately concerned with the accident. In order to comply with the provision of sub-section (2) of section 18 the Inspector should present to the owner or person in charge of the boiler a series of written questions on all points that are material to the enquiry.

**31. Use of boiler after accident.**—The Inspector should decide whether the use of the boiler can be permitted at the same or at a lower pressure without repairs or pending the completion of any repairs or alterations that he may order. In no case should he issue a Provisional Order or Renewal Certificates, until his orders have been carried out.

**32. Procedure in case of serious accident.**—The report shall be sent without delay to the Chief Inspector. If he considers that the investigation has been sufficient, he shall record the facts in his register of accidents, and enter a brief account of the accident in the registration book, a copy being made in the memorandum of Inspection Book. If, however, the accident is of a serious nature and in all cases in which an explosion has occurred, the Chief Inspector, should after receipt of the Inspector's report proceed to investigate the accident personally or to move the State Government to appoint a Commission to enquire into the accident. When the State Government has ordered an enquiry, the report thereof shall be recorded as indicated above.

**33. Commissions of enquiry.**—Commissions appointed under the preceding rule shall ordinarily consist of the Chief Inspector and one independent person.

**34. Reference in annual report.**—A brief account of all accidents and their causes should be included in the Chief Inspector's Annual Report.

**35.** If in the course of inspection, or any other time, the Inspector discovers damage which comes within the definition of an accident, but which has not been reported he shall report the facts at once to the Chief Inspector for action under clause (d) of section 24.

## VII. APPEALS

**36. Filing of appeal.**—Every petition of appeal shall be made in writing either in English or in the vernacular, and should, under Article 11 of the Schedule II of the Court Fee Act, 1870, as amended by the Courts Fees (Himachal Pradesh Amendment) Act, 1953, bear a Rupee one Stamp.

**37. Presentation of appeal.**—An appeal may be presented either personally or by registered post to the Chief Inspector.

**38. Form of appeal.**—The petition of appeal shall be accompanied by the original order, notice or report appealed against, or by a certified copy thereof, or, where no such order, notice or report has been made in writing, by a clear statement of facts appealed against, the grounds of appeal and the relevant section of the Act.

**39. Fixing date for hearing.**—On receipt of an appeal the Chief Inspector shall, if the appeal is to be heard by himself, at once fix a date for hearing the appeal; and, if it is to be heard by the appellate authority, obtain a date for the hearing of the appeal from the President of the Court. It is important that there should be no delay in the decisions of appeals, as the stoppage of a boiler is likely to put the owner thereof to great inconvenience. The decision should ordinarily be given within 10 days from the receipt of the petition of appeal.

**40. Procedure before hearing.**—When the date of hearing has been fixed, the Chief Inspector shall at once issue a notice to the appellant stating the date of hearing and informing him that if he wishes to be heard in support of the appeal or to produce evidence, he must be present either in person or by authorised agent with his evidence on the date fixed. The notice shall be sent to such address as shall be entered in the petition of appeal.

**41. Presence of Inspector.**—In all appeals the Chief Inspector shall decide whether the presence of the Inspector is necessary, and shall issue orders accordingly.

**42. Attendance of witnesses.**—The appellate authority shall have power to secure the attendance of witnesses and to make local inquiries under the provisions of the Code of Civil Procedure.

**43. Ex-parte decisions.**—If the appellant is not present on the date fixed the appeal may be decided in his absence.

**44. President of Appellate Court.**—The State Government shall appoint an officer to be president of the Appellate Court for such period as it thinks fit. The President shall be an officer with judicial or magisterial experience.

**45. Panel of Assessors.**—The State Government shall constitute a panel of assessors for the purpose of assisting in the hearing of appeals. Assessors must be fully qualified mechanical engineers.

**46. Constitution of Appellate Court.**—Whenever the date for an appeal before the Appellate Court has been fixed, the Chief Inspector shall, under the orders of the President of the Court arrange for the attendance of three members of the panel constituted under the preceding rule to act as assessors.

**47. Costs in appeals.**—In appeals before the appellate authority the President is authorised to fix the costs and recover them from the appellant in any case in which the appeal is dismissed. In all cases of appeal in which a local inspection is required by the appellant he shall deposit in advance the full cost of such inspection.

**48. Fees required for certificates granted on appeal.**—Any order on appeal authorising the registering of a boiler or the grant of renewal of a certificate shall be deemed to be subject to the payment of such fees as are prescribed by Rules or regulations framed under the Act.

## VIII. BOILER ATTENDANTS

**49. Appointment of a qualified boiler attendant.**—Every owner of a boiler shall arrange to keep his boiler under the charge of a person holding a certificate of competency. The rules prescribing the conditions on which such certificates may be granted are contained in Appendix B:

Provided that a person holding a certificate of competency issued by the Indian Military Department may when on the active list hold charge of a boiler, belonging to that Department, without the certificate referred to in this rule, but subject to the following conditions:—

- (i) A person holding a certificate of clause 3 or 4 may not hold charge of a boiler (with steam pipes) whose rated capacity exceeds 550 square feet.
- (ii) A person holding a certificate of clause 2, may not hold charge of a boiler (with steam pipes) whose rated capacity exceeds 1,600 square feet.

**50.** Whenever charge of a boiler passes from one attendant to another the owner shall inform the Chief Inspector and send a duplicate copy of the certificate of the newly engaged person.

**51. Penalty.**—Any person who:—

- (a) wilfully obstructs an Inspector in the exercise of any powers conferred by any rules made under the Act; or
- (b) does or omits to do any act prohibited or prescribed by regulations or by these Rules, shall be punishable with fine which may extend to one hundred rupees.

### FORM A

.....Boilers Inspection Department

### REGISTER OF BOILERS

Registry number	Type of boiler	Boiler rating	Name of manufacturer	Year & place of construction	Date of registration	Name of owner	Place where in use	Remarks transfers etc.
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In part II of the Register, column 1 should contain the Registry number and letters.

**FORM B**  
**INDIAN BOILERS ACT, 1923**

(*Act V of 1923*)

**Notice for examination of Boiler under section 8**

No. 19

**BOILER INSPECTIONS OFFICE**

Dated. the 19

To

.....  
.....  
.....

In reply to your application, dated..... you are hereby informed that Boiler Registry No..... at the above named premises will be thoroughly examined by the Government Inspector on the..... To enable the examination to be made are required to:—

- (a) afford to the Inspector all reasonable facilities for such examination and all such information may reasonably be required by him;
- (b) arrange that the boiler is properly prepared for examination in the prescribed manner;
- (c) provided in the case of a boiler about to be registered such drawing specifications and certificates as may be prescribed.

Voucher No..... in acknowledgement of ank/  
Treasury Receipt No..... Rs.....  
companies.

**INSPECTOR OF BOILERS**

(*See below for preparation required*)

**PREPARATION FOR EXAMINATION**

*See Part II, Chapter I of the Regulations and Regulation 31*

**(A) PREPARATION FOR INSPECTION**

At every inspection of a boiler for the grant or renewal of a certificate, the boiler shall be empty and thoroughly clean in all its parts. All door of manholes, handholes and sightholes, and cleaning plugs and all caps in the headers and mud drums of water tube boilers, all firebare bearers, front plates, bridge plate, fire bridges brick arches, oil fuel burners and mechanical stoker fittings shall be removed. All valves and cocks comprising the boiler mountings shall be opened up and taken apart and the valves or cocks ground, where necessary, before the Inspector visit.

Provision shall be made for the removal of lagging or brickwork or other concealing part and for the drilling of plates. If required by the Inspector, and for verifying the pressure gauge and safety valve dimensions and rights. All smoke tubes, smoke boxes, and external flues shall be swept clean.

Provisions shall be made for the effective discharge of all steam and hot water communication with any other boiler under steam as described in Part III of the Regulations. This shall be effected either by the removal of a length of pipe from the steam and feed piping or by the insertion of substantial blank flanges. Where blank flanges are employed, they must be inserted between the flang of the chest and the pipe attached to it. No blank flang shall be inserted between a safety valve chest and the boiler.

*Note.*—These provisions as to effective disconnection shall extend to every case wherein a person is sent, or with the assent of the owner or person in charge goes, into a boiler for any purpose.

### (B) PREPARATION FOR HYDRAULIC TEST

The chests of all mountings subject to steam pressure shall be in place and shut tight or blank flanged. The safety valves should either be jammed down or removed, and the chest opening blank flanged. The attachment for the Inspector's pressure gauge and the nipple for connection the Inspector's test pump hose should be in order. The receiving socket shall be fitted with an easily removable cap. In the case of small boilers which cannot be entered by an Inspector and which are hydraulically tested at each inspection a plug hole tapped 7/8 inch British standard white worth thread shall be provided in a handy position for the attachment of the Inspectors' test pump hose nipple. All doors shall be properly jointed and tightened up. The boiler shall be completely filled with water, care being taken to allow all air to escape and, if possible, a preliminary test not exceeding the working pressure of the boiler should be taken before the Inspectors visit to test the tightness of the joints, when a boiler is hydraulically tested for the first time it shall be entirely cleared of lagging and brickwork, at subsequent tests the lagging or brickwork or portions thereof shall be removed if required by the Inspector.

Preparation now required..... A. B.

*Note.*—The last certificate of the boiler along with the attendant's certificate competency should be shown to the Inspector.

### APPENDIX 'A'

### GENERAL WORKING OF BOILERS

### INSTRUCTIONS TO BOILER ATTENDANTS

*(Taken from page 157 of the Boiler Laws Committee's Report)*

The instructions should be frequently and carefully studied, with a view to keeping in mind the precautions to be observed, and the ordinary procedure to be followed in the safe working of boilers.

In part II of the Register, column 1 should contain the Registry number and letters.

**FORM B**  
**INDIAN BOILERS ACT, 1923**  
*(Act V of 1923)*

**Notice for examination of Boiler under section 8**

No. **19**

**BOILER INSPECTIONS OFFICE**

Dated,                      the                      19

To

.....  
 .....  
 .....

In reply to your application, dated..... you are hereby informed that Boiler Registry No..... at the above named premises will be thoroughly examined by the Government Inspector on the..... To enable the examination to be made are required to:—

- (a) afford to the Inspector all reasonable facilities for such examination and all such information may reasonably be required by him;
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- (c) provided in the case of a boiler about to be registered such drawing specifications and certificates as may be prescribed.

Voucher No..... in acknowledgement of ank/  
 Treasury Receipt No..... Rs.....  
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Provision shall be made for the removal of lagging or brickwork or other concealing part and for the drilling of plates. If required by the Inspector, and for verifying the pressure gauge and safety valve dimensions and rights. All smoke tubes, smoke boxes, and external flues shall be swept clean.

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Preparation now required..... A. B.

*Note.*—The last certificate of the boiler along with the attendant's certificate competency should be shown to the Inspector.

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## GENERAL WORKING OF BOILERS

### INSTRUCTIONS TO BOILER ATTENDANTS

*(Taken from page 157 of the Boiler Laws Committee's Report)*

The instructions should be frequently and carefully studied, with a view to keeping in mind the precautions to be observed, and the ordinary procedure to be followed in the safe working of boilers.

## PRECAUTIONS BEFORE STARTING THE FIRES

Before starting the fires in the boiler, the attendant should:—

- (1) see that there is sufficient water in the boiler and that the gauge cocks are working freely;
- (2) case safety valves, or open cock on top of boiler to allow air to escape;
- (3) see that the blow off cock is fully closed and tight;
- (4) see that the safety valves and feed check valve are free and workable;
- (5) see that the water is not leaking from any part of the boiler;
- (6) note if the pressure gauge pointer is at zero;
- (7) see that the feed pump is in working order.

He must not rely on the supposition that the water he has previously put in is still in the boiler, as it may have now run out without his knowledge through a leak or open cock, nor can he be sure that the gauge glass shows the true water level until he has tested it. This is done in the following manner; shut off the lower gauge cock, and empty the drain cock; then shut the drain cock and open the gauge cock; if everything is in order, the water will then rise in the glass to the same height as before.

## RAISING STEAM

In getting up steam in all types of boilers, the operation should be as gradual as circumstances will allow. Nothing turns a new boiler into an old one sooner than getting up steam too quickly. Forcing the fires when starting work is liable to cause straining of the steams and tubes of the boilers. In the case of large boiler generally, steam should not be got up in less than six hours. Before getting up steam, the water level should be observed, to ensure that water is at the proper height in the glass, the pressure gauge noted, and the safety valves tried to see that they are free. The blow-off cock should be examined that it is completely shut and tight.

*The Water Gauges.*—These will be kept best in order by frequently blowing through. The cocks are thus kept in good working condition without leaking. Blow through the drain cock at the bottom of the gauge, and shut and open the steam and water cocks every few hours. These cocks should be blown through more frequently when the water is dirty. Should either of the passages become choked, or whenever the water in gauge glass moves sluggishly the passage must be cleaned. This is best done with a wire. The gauge glass is so arranged that its top cock connects with the steam space and its bottom cock is below the water line. The water line will ordinarily be near the centre of the glass tube. Always test the glass water gauges thoroughly the first thing in the morning and at the commencement of every shift. This is done by first opening the drain cock, then shutting the upper cock which should give water, the upper cock should then be opened and the bottom cock closed which should give steam; during this test the drain cock should be kept open.

If water and steam do not appear in proper order, the cocks are choked and the passages should be cleaned. To lessen the risk of breaking the gauge glass the water cock should always be re-opened after the steam cock.

Gauge glasses with a narrow white strip running the whole length of the glass on the side next the boiler are recommended as they show the water line more clearly, especially when the water is dirty.

The government boiler regulations require every water gauge glass to be fitted with a guard to prevent injury to the attendants. See that it is always in place, and clean when there is steam in the boiler.

*Special Note.*—It does follow that there is plenty of water in the boiler because there is plenty of water in the gauge glass. The passages may be choked, and empty gauge glasses are some times mistaken for full ones, and explosions have resulted therefrom. Hence the importance of keeping the gauge cocks perfectly tight and clean and of blowing through that cocks frequently.

A large number of accidents have been due to inoperative water gauges and to negligence of the attendant in not carefully reading the water-level.

*The blow-off cock.*—The blow-off should be used daily if the water is at all dirty or sedimentary, especially with locomotive type and vertical boilers, as their narrow water spaces are liable to get choked with mud which soon hardens into a solid mass. The amount of water to be blown out depends on the size of the boiler and can be determined only from experience. When blowing out the best result is obtained, if the water has been at rest for some time (say, before the engine is started) thus giving the sediment time to settle; if the feed water is clean, merely run the cock round.

*The scum cock.*—When scum cocks are fitted, if the feed water is dirty, a little should be blown off daily, if the water is clean merely turn the cock round. Before opening the scum cock see that the water is at the height indicated by the water-level pointer, otherwise the scumming will be ineffective. Water should be blown from the surface through the scum cock when steam is being drawn off, i.e., when the engine or other machinery is working.

*Manhole and other door joints.*—When making such joints, the jointing material should never be of round sectioned packing. Care must be taken that the spigot of the door is centrally placed in the hole, as many accidents have resulted from packing being blown out between the spigot and side of hole, even when the clearance was only  $1/8$  inch. The nuts must be carefully and evenly tightened.

*Steam pipes.*—When properly arranged, should give no trouble. Frequently, however, they are so designed as to contain pockets, in which while out of use, condensed steam accumulates. Such water is exceedingly dangerous and great care should be taken to see that the pipes are properly drained before the stop valve is opened, otherwise 'water hammer' will take place even with the best designed steam pipes, and disastrous explosions, causing loss of life and property, may occur.

*Scale and grease.*—Roughly speaking, scale offers a hundred times as much resistance to the passage of heat as does a similar thickness of steel or iron. A half inch furnace plate covered with  $1/10$ th inch scale is as efficient heat retarder as a steel furnace 10 inches thick. Grease is about ten times worse than scale. In a boiler at work the temperature of a clean furnace plate is only slightly in excess of that of the water in the boiler; but if scale or grease is interposed between the water and the plate, the latter acquires a temperature more nearly approximating that of the flame with which it is in contact. If the fire is fierce (artificial draught) the furnace tube may grow so hot that it elongates considerably. If, in addition, cold air is admitted, during each firing, a concertina action of the furnace takes place, which is one of the worst causes of boiler wear and tear. Wear and tear can be reduced and the life of a boiler prolonged if scale and

grease are prevented from accumulating in a boiler. The combined effect of scale or grease and artificial draught are disastrous. Scale or grease also causes waste of fuel.

*Grease.*—A mixture of sedimentary water, soda and grease produces an adhesive scum. Where this is suspected, the water-level should never be lowered below the furnace top, unless the boiler is afterwards entered and this scum cleaned off the furnace plate before firing again.

*Scale removal.*—The customary method is not a satisfactory one. The boiler is emptied and then cooled down by opening all the manholes and the result is that the scale, which would otherwise be soft, hardens through contact with the air, and required laborious chipping off.

A very effective but slower method is to retain water in the boiler until cool, and not to run it out until the men are ready to enter the boiler with water hose, brushes and scrapers. The scale will then be soft and easily removable. If time is a consideration, the cooling can be accelerated by adding cold feed to the hot water in the boiler and slowly running off the cooled water. Another method is to blow off the boiler with the lowest possible pressure (not more than 20 lb.) and to keep it closed until cold. The scale will then be easily removed.

*Treatment of feed water.*—Many feed waters require soda or other chemical to arrest corrosion or to change the nature of the scale. There is no harmless chemical which will remove scale or sediment when it has once got into the boiler, and the only effective process is to purify the feed water before it enters the boiler. By this means the sediment, and generally too, the added chemical can be deposited in tanks or in filters, and therefore never goes in to the boiler. Excepting when the water obtainable is very good water purifying apparatus ought to pay any boiler owner, particularly at those works where three or more boilers are in constant work. Boiler owners wishing to have definite advice as to the best treatment of their feed water should have it analysed at some chemical laboratory and ascertain the best treatment in the particular circumstances.

Special attention is drawn to the not infrequent but very bad practice of allowing the waste steam from the engine cylinders or pumps to be drained into the boiler feed water tanks. The waste steam from cylinders is always mixed with a certain amount of oily matter, which will be deposited in the feed water tanks and ultimately be pumped into the boiler, with possibly disastrous results, as it will be obvious to every careful boiler attendant that should the oil be deposited on the furnace crowns, they may become over heated and collapse.

It should be the first care of the boiler owner and the boiler attendant to see that the feed water is kept as pure as possible. Impure feed water means additional expense on the upkeep of the boiler.

*Preservation of boilers when not in use.*—Steam boilers when not in use are liable to deterioration from corrosion and, unless well cared for and made rust proof, they may depreciate more rapidly than when in use. They should be thoroughly drained and thoroughly dried and all valves cocks and openings closed so as to exclude moisture. Another plan is to fill the boiler with water to which about 1/100 per cent caustic soda has been added.

Special instructions for boiler No. ....

This boiler should be opened up and thoroughly cleaned after a period of work which should not exceed. ....

A record of such cleanings should be maintained and produced when required by the Inspector.

Dated . . . . .

Inspector of Boilers.

APPENDIX 'B'

*Rules under clause (D) of section 29 of the Indian Boilers Act, 1923*

1. (i) For the purpose of granting certificate of competency the State Government shall from time to time appoint a Board of Examining Engineers hereinafter called the Board consisting of a Chairman and three members.

(ii) The State Government may at any time cancel the appointment of the Chairman or of any member of the Board.

(iii) The Chairman and any two members of the Board shall form a quorum.

(iv) All certificates shall be granted on the prescribed forms.

2. *Certificate of competency.*—The Board may at its discretion without examination grant:—

(a) a 1st Class Certificate of Competency:—

(i) to any member of the Board;

(ii) to any person who holds a certificate as a 1st Class Marines Engineer issued by the Board of Trade;

(iii) to any person who holds a 1st Class Certificate of Competency granted under the authority of any Local Government in India or Burma;

(iv) to any person who is member of the Institute of Mechanical or Marine Engineers in England;

(b) a 2nd Class Certificate of Competency—

(i) to any person who holds a 2nd Class Certificate of Competency granted under the authority of any Local Government of India or Burma;

(ii) to any person who holds a certificate as a 2nd Class Marines Engineer issued by the Board of Trade;

(iii) in the said Rules for clause (iii) of sub-rule (b) of rule 2 substitute the following namely:—

“to any person who is an associated member of the Institute of Mechanical or Marine Engineers in England, or is a graduate of any of the recognised Universities indicated in Appendix ‘C’ or to any other person holding an equivalent qualification which has been approved by the State Government on the recommendation of the Board and who has had practical experience of boiler for three years.”

(iv) To any person who have passed the Associate Membership examination (See A&B) of the Institute of Engineers (India) and can produce before the Board of Examining Engineers his certificate in original to that effect.

3. The Board may at its discretion grant after examination (See Rule 11 of the Rules, contained in this Appendix B).

(a) a 1st Class Certificate of Competency to any person who holds a 2nd Class Certificate of Competency or a 1st Class Certificate granted under the authority of any Local Government in India or Burma or a 2nd Class Service Certificate granted under the authority of Himachal Pradesh Government;

## (b) a 2nd Class Certificate of Competency:—

- (i) to any person who has served for not less than three years as an apprentice, and for not less than three years on the running and fitting of boilers, and can produce, before the Board of Examining Engineers, testimonials in original of his experience and good character signed by the manager of a factory, or other competent authority;
- (ii) to any person who holds a 3rd Class Certificate of Competency granted under rule 4 of Appendix B or under the authority of any other Local Government in India and Burma;
- (iii) to any student who has successfully passed his examination of the classes noted against the below noted Engineering Colleges or Institutes and has also had one years practical experience on boilers after leaving the College or Institute.

(1) MacLagan Engineering, Class A Lahore.

(2) Victoria Jubilee Technical Institute, Diploma Class, Bombay.

(3) Bengal Engineering College, Mech. Class, Shibpur, Calcutta.

(4) Benaras Hindu University, Engineering B.Sc. Class, Benaras.

4. The board may at its discretion grant a 3rd Class Certificate of Competency to a candidate who is able to answer satisfactorily practical questions put to him by the Board regarding the management of boilers; and

- (i) who has served for not less than six years on boilers and produces before the Board testimonials in original of his experience and good character signed by the manager of a factory or other competent authority; or
- (ii) who holds a 3rd Class Certificate of Competency granted under the authority of any Local Government in India and Burma;
- (iii) to any student who has successfully passed his examination of classes noted against the following Engineering Colleges or Institute and has also had one year's practical experience on boilers after leaving the College or Institute:—

1. Punjab College of Engineering and Technology (Formerly MacLagan Engineering College Class B Lahore);
2. Hindu Technical Institute, Lahore Mech: Engineering Class;
3. Kalaghawan Technical Institute, Baroda;
4. Bengal Technical Institute, Calcutta;
5. Hindu University Diploma Class, Benaras;
6. Government Technical School, Jhansi;
7. Government Technical School, Lucknow;
8. Government Technical School, Gorakhpur;
9. Technical College Dayalbagh, Agra;
10. I.D. Technical Institute Bahjoi (Muradabad);
11. Central Technical Institute, Gwalior (M.B.).

(a) The board may also at its discretion after, an oral examination grant a restricted certificate allowing the possessor to hold charge of boiler with rated capacity not exceeding 80 square feet to a person who is in the permanent service of Government and has previous experience of the care and maintenance of boilers of the kind for which the restricted certificate is issued in case in which such a restricted certificate is recommended by the Head of Government Department in the interest of public service. In making the recommendation in writing to the Board, the Head of Department will state that he has satisfied himself that the restricted certificate is necessary in the interest of the Public Service, and that his departmental regulations do not permit the employment of outsider holding third class certificate of competency. The grant of non-restricted certificate of competency to such restricted certificate holders will be governed by the provisions of Rule 4(1) above.

5. (a) A 1st Class Certificate of Competency entitle the possessor to hold charge of any boiler or boilers (with steam pipes), provided that no person shall be in charge of two or more boilers belonging to different owner or of two or more boilers belonging to the same owner, which are more than one thousand feet apart.

(b) A 2nd Class Certificate of Competency entitles the possessor to hold charge of a boiler or boilers (with steam pipes) whose rated capacity does not exceed 1,600 square feet, provided that no person shall be in charge of two or more boilers belonging to different owners or of two or more boilers belonging to the same owner, which are more than 1,000 feet apart.

(c) A 3rd Class Certificate of Competency shall entitle the possessor to hold charge of a boiler (with steam pipes) up the rated capacity of 550 square feet.

*N.B.*—Boilers belonging to the same owner in charge of one person must be located in the same compound. Boilers supplying steam to one steam range must be in charge of one person.

6. (a) The following fees should accompany each application to the Board of Examination:—

(i) for a 1st Class Certificate of Competency	..	..	10
(ii) for a 2nd Class Certificate of Competency	..	..	8
(iii) for a 3rd Class Certificate of Competency	..	..	5

The following fee will be charged for the grant of Certificate of Competency:—

(i) 1st Class	..	..	..	..	..	15
(ii) 2nd Class	...	...	..	..	..	12
(iii) 3rd Class	..	..	..	..	..	10

“The fee after deduction of actual expenditure incurred in connection with conduct of the examination shall be divided among the members of the board who take part in the examination or who, where there is no examination grant the certificate and the staff dealing with the examination in the ratio of 2 : 1 i.e. 2/3rd to the members and the 1/3rd to the staff.

7. Applications for examination on the prescribed form should be addressed to:—

The Chairman, Board of Examining Engineers, Indian Boilers Act, Himachal Pradesh, Simla.



The fee prescribed in clause (a) of rule 6 of Appendix B should be remitted to the same address by money order or paid to the Chairman in cash and his receipt obtained. No application will be entertained until the fee has been received by the Chairman.

*N.B.*—Person below 21 years of age will not be admitted.

8. The Chairman shall keep an account of the fees received and of the payments made to members.

9. (a) The Chairman shall fix and notify in the public press the date, time and place of the examination.

(b) The date of examination and the last date on which application for admission to the examination can be received will be published in four leading newspapers of the Province (two English and two Hindi) and information will be given individually to any one who makes an enquiry about it from the Chairman. But the Board is not bound to give this information by special letter to each candidate for the examination. The want of this information will not, therefore, be an excuse for absence from the examination which entails on the absentee the forfeiture of his admission fee.

(c) An application for admission to the examination will not be accepted from the date fixed, in sub-section (b) of this section, for the receipt of such application, unless it is received in the office of the Chairman one week before the date fixed for the examination accompanied by a remittance of two rupees as late fee.

10. The Board may cancel either temporarily or permanently any certificate when they are satisfied that the holder thereof it by reason of misconduct or carelessness or of any cator or omission on his part which is in contravention of the rules and regulations made under the Act or for any other cause unfit to retain it. The Chairman may cancel such certificate temporarily till the next sitting of the Board on the report of the Chief Inspector appointed under the Act. A person whose certificates have thus been temporarily cancelled either by the Chairman or on the motion of the Board will be given an opportunity to appear before the Board to show cause why his certificate should not be permanently cancelled. The Board may after enquiry grant duplicate certificate to any person whose original has either been cancelled or lost on payment of full fee as per rule 6.

11. The examination held under rule 3 of the rules contained in this Appendix shall be partly written and partly practical.

(a) The examination will consist of—

- (i) a paper of seven questions of Mathematics;
- (ii) a paper of seven questions on boilers and steam pipes;
- (iii) mechanical drawing of boiler parts.

The time allowed for the examination in each of the above subjects will be two hours.

(iv) oral questions on boilers and steam pipes and pumps.

(b) The paper on Mathematics will include questions on the first four rules of arithmetic, proportion, vulgar and decimal fractions and their application of questions regarding the consumption of stores and capacities of tanks and bunkers the duty of pumps and the direct stresses in boilers. The full marks will be 120. The candidate will be required to obtain 80 marks to qualify himself for a First Class Certificate of Competency and 60 for a 2nd Class Certificate of Competency.



(c) The paper and oral examination on boilers and steam pipes will include question on the following subjects:—

- (i) The various kinds of boilers, their setting erection, and method of staying them together with the use and management of the different valves, cocks, pipes and feed pumps and connections;
- (ii) The various defects of boilers caused by accidents, decay etc. and the means of repairing them;
- (iii) The use of the barometer, thermometer and salinometer and the principle on which they are constructed;
- (iv) The causes, effects and usual remedies for incrustation and erosion;
- (v) Simple hydraulic pressure;
- (vi) Chemical analysis of water.

The full marks for the above paper will be 150 and the minimum to qualify will be 100 for a 1st Class Certificate of Competency and 60 for a 2nd Class Certificate of Competency, and in the oral examination full marks will be 150, and the minimum to qualify 125 for a 1st Class and 100 for a 2nd Class Certificates of Competency.

(d) The candidate will be required to make an intelligible hand sketch or a working drawing of some one or more of the principal parts of the boiler. The full marks will be 80 and the qualifying minimum 60 for a 1st Class Certificate of Competency and 40 for a 2nd Class Certificate of Competency.

12. The total number of marks for the examination will, therefore, be 500 and to qualify for a 1st Class Certificate of Competency the candidate must obtain an aggregate of 365 and for a 2nd Class Certificate of Competency 260.

13. (a) No candidate will be allowed to appear for re-examination until ten months after the date of the examination which he failed to pass. The Board may in special cases grant concessions to deserving unsuccessful candidates to appear for re-examination at the next meeting of the Board.

(b) A candidate to whom a certificate of competency has been granted will not be eligible to appear in the examination for a higher certificate until ten months after the date of the examination which he has passed.

14. Candidates for 1st and 2nd Class Certificates of Competency will be permitted to write their answers in Hindi, but writing all figures in English characters.

15. Provisional certificates of competency valid pending the date of the next meeting of the Board are issued by the Chairman (i) to applicants possessing certificates of competency of other provinces, (ii) who are eligible to obtain certificates without examination, (iii) who have failed only in oral examination, on payment of the fees prescribed but no fee is charged for a permanent certificate of competency if it is applied for and granted at the first examination after the expiry of the period of the provisional certificate. Fresh fees will be payable if the holder of the provisional certificate of competency applies for a permanent certificate of competency at any examination subsequent to that held immediately after the expiry of the provisional certificate.

16. Persons holding 1st Class Engine Drivers' Certificates granted under the Punjab Steam Boilers and Prime Movers' Act, 1902 will only have the privileges of holders of 3rd Class Certificates under these rules until they obtain certificates of a higher class.

17. Persons holding 2nd Class Drivers' Certificates under the Punjab Steam Boilers and Prime Movers' Act, 1902, will not be entitled to hold charge of boilers whose heating surface exceeds 250 square feet, until they obtain 3rd Class Certificates under these rules.

### APPENDIX C

**List of Examination recognised by the Council as exemption from sections 'A' and 'B' of the Associate Membership Examination**

**CALCUTTA**—B. E. Examination in 'Civil' or 'Mechanical' or 'Electrical' Engineering.

**Bombay**—B. E. Examination.

**MADRAS**—B. E. Examination.

**BENARAS HINDU UNIVERSITY**—B. Sc. Examination in Engineering, B. Sc. (Mining).

**PATNA**—B. C. E.

**RANGOON**—B. Sc. in Engineering.

**MYSORE**—B. E. in 'Civil', Mechanical' or 'Electrical' Engineering.

**PUNJAB**—B. Sc. in Engineering.

**OSMANIA UNIVERSITY (HYDERABAD)**—B.E.

**TRAVANCORE**—B. Sc. in Engineering.

**THOMSON CIVIL ENGINEERING COLLEGE, ROORKEE**.—Diplomas in Civil Engineering (Formerly Assistant Engineer's Certificate).

**INDIAN INSTITUTE OF SCIENCE, BANGALORE**.—Certificates in Electrical 'Technology' or in Electrical 'Communication' Engineering.

**INACLAGAN ENGINEERING COLLEGE**.—A Class Diplomas in the First Division (65 per cent or more marks) and the Honours Division (80 per cent or more marks) in (i) Mechanical Engineering and (ii) Electrical Engineering from 1935.

**COLLEGE OF ENGINEERING AND TECHNOLOGY, BENGAL**.—

(i) Engineering Degree.

(ii) Special Degree Examination.

(iii) The diplomas in Mechanical, Electrical and Chemical Engineering from 1941 onwards; provided the candidate has passed the Intermediate Examination in Science of a recognised University with Physics, Chemistry and Mathematics.

**SCHOOL OF MILITARY ENGINEER, ROORKEE**.—Engineering Officers Supplementary Engineering Course.

**DELHI POLYTECHNIC**.—Diploma in Electrical and Mechanical Engineering of the All-India Council of Technical Education.

**INSTITUTION OF CIVIL ENGINEERS**.—Section A & B of the Associate membership examination.

**INSTITUTION OF THE MECHANICAL ENGINEERS**.—Sections A and B of the Associate Membership Examination.

INSTITUTION OF ELECTRICAL ENGINEERS.—Associate Membership Examination.

INSTITUTION OF STRUCTURAL ENGINEERS.—Associate Membership examination exempting from section A only.

INSTITUTION OF SANITARY ENGINEERS.—Associate Membership Examination with the following subjects, viz., Sanitary Engineering, Hydraulics and Hydraulic Machinery and Geodesy, as exempting from section B only.

OXFORD UNIVERSITY.—B.A. with Honours in Engineering Science, Final Honours School.

CAMBRIDGE.—B.A. (Honours) Mechanical Science Trips.

St. ANDREWS.—B. Sc. in Engineering.

GLASCOW.—B. Sc. in Engineering.

DUBLIN.—B.A.I. (Ordinary or with Honours in Engineering).

MC-GILL (MONTREAL).—B. Sc. in 'Civil', 'Mechanical' or 'Electrical' Engineering in 'Naval Architecture' (Honours or Ordinary Degree).

LONDON.—B. Sc. (Internal or External Degree) in Engineering (not including the B. Sc. in Engineering (Metallurgy) (Honours or Ordinary Degree).

B. Sc. (Internal) in Engineering (Mining obtained in or after 1926).

B. Sc. (External) in Engineering (Mining), Honours Degree (obtained in or after 1935).

VICTORIA UNIVERSITY (MANCHESTER).—B.Sc. Tech. (Ordinary Course, Division I&II) in Electrical Engineering.

B.Sc. Tech. (Higher Course, Honours Div., or ordinary course Division I) in Municipal Engineering.

B.Sc. Tech. (Ordinary Degree obtained in or after 1930) in Municipal Engineering.

B.Sc. in Engineering (Honours Degree or ordinary Degree from 1925 onwards).

B.Sc. Tech. in 'Mechanical' or 'Electrical' Engineering (Honours Division in the Final Examination).

BIRMINGHAM UNIVERSITY.—B. Sc. in 'Civil' or 'Mechanical' or 'Electrical' Engineering (Honours or Ordinary Degree).

LIVERPOOL.—Eng. in 'Civil' or 'Mechanical' or 'Marine' or 'Electrical' Engineering or 'Naval Architecture' (Honours or Ordinary Degree).

LEEDS.—B.Sc. in 'Civil' or 'Mechanical' or 'Electrical' Engineering (Honours or ordinary Degree).

SHEFFIELD.—B. Eng. in 'Civil' or 'Mechanical' or 'Electrical' Engineering (Honours Degree or ordinary Degree with a first class in the final examination will not be required in the cases of degree obtained in or after June, 1930).

BRISTOL.—B.Sc. in 'Civil' or 'Mechanical' or 'Electrical' Engineering (Honours or ordinary Degree).

WALES.—B.Sc. in 'Civil' or 'Mechanical' or 'Electrical' Engineering.

NATIONAL UNIVERSITY OF IRELAND.—B.E.

QUEEN (BELFAST).—B.Sc. in Engineering.

SYDNEY.—B.E. in 'Civil' or in 'Mechanical' and 'Electrical' Engineering.

MELBOURNE.—B.C.E.B. Mech. E. or B.E.E.

NEW ZEALAND.—B.E. in 'Civil' or 'Mechanical' or 'Electrical' Engineering.

ADELAIDE.—B.E. in 'Civil' 'Mechanical' or 'Electrical' Engineering.

QUEENSLAND.—B.E. in 'Civil' or 'Mechanical' or 'Electrical' Engineering.

WESTERN AUSTRALIA.—B.E.

DIPLOMAS IN ENGINEERING.—

University College, London.

King's College, London.

City and Bud, London, Final Grade Certificate Examination.

Farady House, London, Diploma in Engineering; provided the Diploma is obtained by actually passing the examination.

ROYAL TECHNICAL COLLEGE, GLASGOW.—Final diploma Examination in Mechanical or Electrical Engineering provided an approved Matriculation Examination has been passed before beginning the course. Manchester Certificate in Technology, Mechanical or Electrical Engineering.

HARIOT-WATT COLLEDGE.—Edinburgh, Associateship in Electrical Engineering.

NAVAL OFFICERS Examination which qualifies as Lieutenant (E).

ROYAL NAVAL COLLEDGE, GREENWHICH.—Professional Certificate for Constructors.

AMERICAN DEGREES AND DIPLOMAS IN ENGINEERING.—Diploma or Degree of only those American Engineering Institutions, the curricula of which have been accredited by the Engineers' council of Professional Development, New York, and provided they have actually been taken after a full 4 years course of studies in such institutions and after at least 4 years experience in practical engineering.

### FORM 'A-1'

Roll No. ....

*The candidate is required to fill in the form neatly and legibly either in English or in Urdu*

To reach in the Chairman's office before .....

The Examination begins on .....

### EXAMINATION FOR THE CERTIFICATE OF COMPETENCY UNDER THE INDIAN BOILERS ACT, 1923

To

The Chairman,  
Board of Examining Engineers,  
Simla.

Sir,

I request permission to present myself at the next examination for ..... Class Certificate of Competency issued by the Board. The fee of Rs. .... and the required certificates and particulars are forwarded herewith.

I have etc.,

Station .....

The ..... 19

(A) Particulars to be filled in by the candidate:—

Name in full	Father's name	Present address, Stating Town, Street, etc.
1	2	3

DATE OF BIRTH

Date	Month	Year
4	5	6

WHERE BORN

Town	Country
7	8

(B) Particulars of all previous certificates (if any) under Boiler Act whether British or otherwise:

Number	Compe- tency or service	Grade	Where issued	Date of issue	If at any time sus- pended or can- celled, state by what court and authority	Date	Cause
9	10	11	12	13	14	15	16

(C) Certificate now required:—

Grade	Competency	Full present address to which it may be sent
17	18	19

(D) If the applicant has failed in any previous examination for the certificate now required he must here state the date and place of each examination in which he has failed. If he has not failed, he must state so in writing across this division:

Day	Month	Year	Station	Subject in which he failed
20	21	22	23	24

(E) Declaration to be made by applicant:

*Take Note.*—Any person who makes, procures to be made or assists in making any false representation for the purpose of obtaining for himself or for any person, a Certificate of Competency will be criminally prosecuted.

I do hereby declare that the particulars contained in Divisions (A), (B), (C), (D) and (F) of the Form are correct and true to the best of my knowledge and belief, and that the papers enumerated in Division (F) and submitted with this Form are true and genuine documents given and signed by the persons whose names respectively appear therein; and further that the copies or the said papers also submitted with this Form are true and correct copies thereof. I further declare that the statement (F) contains a true and correct account of the whole of my services without exception.

I make this declaration conscientiously believing the same to be true.

Dated at ..... this ..... day of ..... 19 ..

Signed in presence of .....

Signature of applicant

*N.B.*—Persons in Government service are to sign this declaration in the presence of the Gazetted Officer under whom they are serving. Other persons should sign in the presence of a Magistrate.

(F) List of testimonial and statement of service:—

#### SERVICE OF APPLICANT

Serial No.	Date of each certificate	Name and designation of the person signing each testimonial	Place of service for which testimonial obtained	Rated capacity of Boiler on which served	Style and name of Factory	Capacity in which served	Date of commencement of service	Year	Month	Days	Actual time served on Boiler	Signature and designation verified	Remarks
25	26	27	28	29	30	31	32	33	34	35	36	37	38

Total Service .....  
Time served for which certificates are now produced .....

*Note* (1).—Verifier should be the same person in whose presence the applicant sign his declaration.

Service for which certificates are not produced will not be counted.

*Note* (2).—This part of the Form is meant for candidates for 1st and 2nd Certificate of Competency.

The candidate must show this Roll Number for admission to the Examination room.

## BOARD OF EXAMINING

Roll No .....

Dated.....19 ..

Admits .....  
of the ..... for ..... Class  
Certificate of Competency to be held on.....  
The Examination shall commence each day at.....A.M.

*Chairman.*

### DIRECTIONS FOR CANDIDATES

1. The doors will be opened each day half an hour before the time specified for the distribution of each paper. After the papers have been distributed no candidates can be admitted. No candidate is permitted to leave the room until the expiry of half an hour after the distribution of the paper.

2. A seat with a number will be allotted to each candidate. Candidates will be required to find out and occupy their allotted seats.

3. The order in which the candidates are seated will be forwarded to the examiners. Should a candidate be discovered to have copied from another he will be excluded from the Examination as well as the candidate from whom he copied, if there is reason to suppose that the copying was connived at by the latter.

4. No candidate, without the special permission of the officer incharge shall leave his seat or the Examination-room until the end of the examination. No candidate is to speak without permission; if it be necessary for the candidate to communicate with the Superintendent, he shall stand up in his place, and the officer-in-charge will see to his wants.

5. Before beginning his answers, each candidate shall write on outside of his answer-book of the following viz., the subject, the number of the paper and his Roll Number. When the time allowed has expired this book must be delivered up to the Superintendent, even though the candidate may not have answered any part of the paper.

6. All candidates are required to provide their own pens. Answers shall be written in the books supplied to the candidates and on one side only of the paper. No candidate shall tear a leaf out of an answer book.

7. No candidate is to bring into the Examination-room books, paper or reference of any kind; a candidate found with any of these in his possession will be expelled. Blotting paper will be supplied. No paper of any kind, except the question paper, is to be removed from the Examination-room.

8. Any candidate detected in giving or receiving assistance, in bringing papers, books or notes into the Examination-room, or in using, or attempting to use, any other unfair means in connection with the Examination shall be expelled from the Examination-room and disqualified not only from passing the Examination, but also from appearing at any future examinations of the Board; subject to any other penalties which the Board may consider proper to impose; provided that on the expiry of two years the Board may, in special cases, exempt a candidate from the operation of this rule.

Candidates guilty of communicating, or attempting to communicate, with the Examiners with the object of influencing them in the award of their marks will be deemed to have used, or attempted to use unfair means within the first clause of his rules. Examiners are required to report at once to the Chairman any candidate guilty of such conduct.

FORM 'A-2'  
HIMACHAL PRADESH ADMINISTRATION  
FIRST CLASS ENGINEER  
CERTIFICATE OF COMPETENCY

(Granted under the Indian Boilers Act, V of 1923)

No. .... of 19 .

Mr. ...., aged about ..... years,  
at present residing at ..... having satisfied the Board of Examiners appointed under the above Act of his competency to have charge of any boiler or boilers (with steam pipes) is granted under section 29(d) of the said Act this Certificate of Competency as a First Class Engineer.

Dated at Simla, the .... day of ..... 19 .

Chairman.

Board of  
Examiners:

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--

Members.

●  
DESCRIPTIVE ROLL

Height without shoes ..... feet ..... inches.

Approximate date of birth .....

Marks .....

Left Thumb Impression:

Signature .....

FORM 'A-3'  
HIMACHAL PRADESH ADMINISTRATION  
FIRST CLASS ENGINEER  
EXCHANGE CERTIFICATE OF GOVERNMENT

(Granted under the Indian Boilers Act, V of 1923)

No. .... of 19 .

WHEREAS MR. .... son of .....  
aged about ..... years, residing at present at .....  
has proved to the satisfaction of the Board of Examiners that he is in possession of a Certificate No. .... of ..... of Competency of the First Class Engineer granted to him under the Boilers Act, he is granted, under section 20(d) of the above noted Act this Certificate of the 1st Class authorising him to have charge of any boiler or boilers (with teams pipes).



Dated at Simla the.....day of.....19 .  
.....Chairman.

Board of  
Examiners:


Members.

### DESCRIPTIVE ROLL

Height without shoes.....feet.....inches.  
Approximate date of birth.....  
Marks.....  
Left Thumb impression.....  
Signature.....

### FORM 'A-4'

HIMACHAL PRADESH ADMINISTRATION

SECOND CLASS ENGINEER

CERTIFICATE OF COMPETENCY

(Granted under the Indian Boilers Act, V of 1923)

No.....of 19 .

Mr.....aged about..... years  
at present residing at.....having satisfied the Board  
of Examiners appointed under the above Act of his competency to have charge  
of a boiler or boilers (with steam pipes) whose rated capacity does not exceed  
1,600 square feet is granted under section 29(d) of the said Act this Certificate of  
Competency as a Second Class Engineer.

Dated at Simla, the.....day of.....19 .  
.....Chairman.

Board of  
Examiners:


Members.

### DESCRIPTIVE ROLL

Height without shoes.....feet..... inches  
Approximate date of birth.....  
Marks.....  
Left Thumb Impression:  
Signature.....

FORM 'A-5'  
HIMACHAL PRADESH ADMINISTRATION  
SECOND CLASS ENGINEER  
EXCHANGE CERTIFICATE OF COMPETENCY  
(Granted under the Indian Boilers Act, V of 1923)

No. .... of 19 ..

WHEREAS MR....., son of.....aged about ..... years, residing at present.....has approved to the satisfaction of the Board of Examiners that he is in possession of a certificate No.....competence of the Second Class Engineer granted to him under Boilers Act, he is granted under section 29(d) of the above noted Act this Certificate of Second Class authorising him to have charge of any boiler or boilers (with steam pipes) whose rated capacity does not exceed 1,600 square feet.

Dated at Simla, the ..... of ..... 19 ..

.....Chairman.

Board of  
Examiners:

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Members.

DESCRIPTIVE ROLL

Height without shoes.....feet.....inches.

Approximate date of birth.....

Marks.....

Left Thumb Impression.

Signature .....

FORM 'A-6'  
HIMACHAL PRADESH ADMINISTRATION  
CERTIFICATE OF COMPETENCY FOR  
THIRD CLASS ENGINEERS

(Granted under Indian Boilers Act V of 1923)

No. .... of 19 ..

WHEREAS MR....., son of.....aged about ..... years, at present residing at....., has produced testimonials of good character, sobriety and experience, and having given satisfactory answers to the questions asked by the Board of Examiners he is granted under the provisions of the Act, this Certificate of Competency entitling him to hold charge of a boiler (with steam pipes) whose rated capacity does not exceed 55,500 square feet.

Dated at Simla, the.....day of.....19  
.....Chairman.

Board of  
Examiners:

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Members.

### DESCRIPTIVE ROLL

Height without shoes.....feet.....inches.  
Approximate date of birth.....  
Marks.....  
Left Thumb Impression:  
Signature.....

### FORM 'A-7'

### HIMACHAL PRADESH ADMINISTRATION PROVISIONAL CERTIFICATE OF COMPETENCY OF.....CLASS (Granted under the Indian Boilers Act, V of 1923)

No.....of 19

MR....., son of.....aged  
about.....at present residing at.....fulfils  
condition.....of rule 15 framed under the above-mentioned  
Act and is granted this Provisional Certificate of.....Class  
valid upto.....

Dated at Simla, the.....

Chairman,  
Board of Examining Engineers.

By order,  
RAJ KUMAR, I.A.S.,  
Secretary.